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EXAMINER	
RUTKOWSKI, JEFFREY M	

ART UNIT	PAPER NUMBER
2619	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/753,446	MLAZGAR ET AL.	
	Examiner	Art Unit	
	JEFFREY M. RUTKOWSKI	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-5 and 17-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft et al. (US Pat 5,568,486), hereinafter referred to as Huscroft in view of Giorgetta et al. (US Pat 7,035,292), hereinafter referred to as Giorgetta, and Akaike et al. (US Pat 7,139,286), hereinafter referred to as Akaike.

4. For **claims 1 and 17**, Huscroft teaches a method of interfacing between an asynchronous stream of cells and a synchronous stream of frames by mapping a synchronous stream contiguously and sequentially onto the payload portion of a frame. An incoming stream of data is transformed into an asynchronous stream of cells by performing cell synchronization, overhead processing and monitoring of incoming frames **[col. 2 lines 45-52]**. Overhead ports are used to extract or insert overhead information from/into a SONET frame **[col. 10 line 43- col. 12**

line 2] (interfacing between said time-multiplexed data streams of overhead bytes and said stream of data based on said minimum interface rate such that an operation is performed at a frequency that is at least equal to said minimum interface rate).

5. Huscroft does not teach how a minimum interface rate is determined. Akaike teaches a SONET/SDH insertion and/or extraction mechanism that takes into account POH bytes that are not located at fixed positions **[col. 3 lines 35-45]** (variable data rate with unaligned floating overhead bytes). Akaike's invention calculates an interface rate by dividing a transmission rate by a constant value **[col. 8 lines 50-55]**. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Akaike's interface rate calculation in Huscroft's invention to provide an internal clocking mechanism to move data internally.

6. The combination of Huscroft and Akaike disclose an insertion and extraction interface that calculates an interface rate based on a transmission rate and a constant value. Giorgetta discloses a link rate calculation that is based on a number of bits chosen for a link (spacing between overhead byes) and a data rate **[col. 12 line 45]**. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Giorgetta's rate calculation method instead of Akaike's rate calculation method in Huscroft's invention to provide a mechanism for determining a data rate **[Giorgetta, col. 12 lines 47-52]**. The replacement of Akaike's rate calculation with Giorgetta's rate calculation yields predictable results because Akaike and Giorgetta are concerned with ways to calculate rates in SONET/SDH networks.

7. For **claims 2 and 18**, Huscroft teaches a transmit overhead insert port **50** inserts transport overhead (TOH) from a data stream of transport data received serially at 5.184 Mbit/sec (transmitting to an external device said overhead bytes in a next available timeslot within a

selected timeslot sequence). A Transmit Transport Overhead Frame Position (TTOFP) signal is used to locate individual transport overhead bits in the transport overhead data stream **[col. 10 line 66 to col. 11 line 8 and figure 5]** (signalling to said external device transmission in step bl) of said overhead bytes in said next available timeslot).

8. For **claims 3 and 19**, Huscroft does not teach requesting a overhead byte or receiving an indication of validity. Akaike teaches the request of an overhead byte and the receiving an indication of validity limitations absent from the teachings of Huscroft by disclosing a POH framing pulse (TPOHFP) is generated to an external device in response to a J1 byte request pulse **[col. 6 lines 50-55]** (requesting said overhead byte from an external device in a next available timeslot within a selected timeslot sequence). An overhead valid signal (ROHAV) is also shared between two devices **[col. 8 lines 55-60]** (if issued from said external device, receiving said overhead byte along said stream of data and receiving an indication of validity of said overhead byte received for insertion from said external device). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a TPOHP signal in Huscroft's invention to allow for frame synchronization. It also would have been obvious to a person of ordinary skill in the art at the time of the invention to use a ROHAV signal in Huscroft's invention as a check to ensure the frame is properly synchronized.

9. For **claims 4 and 20**, the rejection of **claim 2** addresses extraction operation limitations (wherein if said operation is selectively determined to be extraction, said operation includes: bl) transmittlng to an external device said overhead bytes in a next available timeslot within a selected timeslot sequence; and b2) signalling to said external device transmission in step bl) of said overhead bytes in said next available timeslot). The rejection of **claim 3** addresses the

insertion limitations and provides the motivation to combine (wherein if said operation is selectively determined to be insertion, said operation includes: bl) requesting said overhead byte from said external device in a next available timeslot within a selected timeslot sequence; and b2) if issued from said external device, receiving said overhead byte along said data stream of data and receiving an indication of validity of said overhead byte received for insertion from said external device).

10. For **claims 5 and 21**, Huscroft teaches the use of synchronous communications **[figure 2]**. Newton's Telecom Dictionary 20th Edition defines synchronous as a condition that occurs when two events happen in a specific time relationship with each other and both are under the control of a master clock (wherein said frequency of operation is synchronized for a single clock domain).

11. **Claims 6 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Akaike and Giorgetta as applied to **claims 1 and 17** above, and further in view of VanDervort (US Pat 5,764,626).

12. For **claims 6 and 22**, the teachings of Huscroft and Giorgetta teach everything in parent **claims 1 and 17, respectively**. Huscroft does not teach delaying an operation via pipelining. VanDervort teaches the delaying of an operation via pipelining absent from the teachings of Huscroft by disclosing the storage of cells in a pipelining First-In First-Out (FIFO) buffer until an appropriate time arrives for transmission **[col. 17 lines 60-67]** (further including a step of delaying said operation in step b) for a number of clock cycles to accommodate for any external latency through use of pipelining stages). It would have been obvious to a person of ordinary

skill in the art at the time of the invention to use pipelining to delay an operation in Huscroft's invention to ensure network synchronism is not disturbed.

13. **Claims 7-11, 13 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Akaike, Giorgetta and Venkataraman ("Designing SONET/ATM Layer Processing ASICs Using Embedded Approach").

14. For **claim 7**, Huscroft teaches a network interface device with an overhead processing unit for path **28,44**, line **26,48** and section **22,24** overhead processing (an overhead processing unit). The rejection of **claims 1 and 17** discusses the overhead processing section functionality with respect to the data rate. The network interface device also has extraction and insertion interface (an extraction interface for transmitting to an external device said overhead bytes in a next available timeslot within a selected timeslot; an insertion interface for requesting said overhead byte from an external device in a next available timeslot within a selected timeslot sequence, and for receiving said overhead byte along said stream of data, and for receiving an indication of validity of said overhead byte received from said external device; wherein said interface device maintains a frequency of operation for said extraction interface and said insertion interface that is at least equal to said minimum interface rate).

15. Huscroft does not teach the components are contained in a single processing unit. Venkataraman teaches the single processing unit limitation absent from the teachings of Huscroft by disclosing a SONET processing system implemented in an embedded multiprocessor System on a Chip (SoC) design **[section 2, paragraph 1]**.

16. Since Venkataraman teaches a SONET processing system can be implemented in a SoC design, it would have been obvious to a person of ordinary skill in the art at the time of the

invention to implement the network interface device in Huscroft's invention in a single unit to enhance the flexibility of the interface device.

17. For **claims 8 and 13**, Huscroft's network interface device includes FIFO buffers **32,40** (claim 8: further comprising a storage device for buffering bursts of data streams arriving at either said insertion interface or said extraction interface; claim 13: wherein said data network interface device provides a minimum amount of storage to absorb a data burst of said stream of data in either extraction mode or insertion mode).

18. For **claims 9 and 10**, Huscroft teaches a SONET frame contains path and transport overhead bytes **[figure 2]** (claim 9: wherein said overhead byte is a path overhead (POH) byte; claim 10: wherein said overhead byte is a transport overhead (TOH) byte in a Synchronous Optical Network (SONET) system).

19. For **claim 11**, Huscroft's network device is capable of decoupling section overhead byes since the device makes use of transmit and receive section overhead processors **22,24** (wherein said overhead byte is a section overhead (SOH) byte in a Synchronous Digital Hierarchy (SDH) system).

20. For **claim 15**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. The teachings from the rejection of **claims 5 and 21** discuss the use of synchronization. Huscroft does not teach the network interface device is a plurality of devices. Akaike teaches the more than one network interface device limitation absent from the teachings of Hoscroft by disclosing the use of parallel POH processors **62** in an interface system **[figure 9]** (wherein said network interface device is a plurality of interface devices for decoupling multiple channels, and wherein each parallel clock of said plurality of interface devices is synchronized for a single

clock domain). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use parallel network interface devices in Huscroft's invention to service more than one channel at once.

21. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Akaike, Giorgetta and Venkataraman, as applied to **claim 7** above, and further in view of VanDervort.

22. For **claim 12**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft does not teach the use of pipelining. VanDervort teaches the pipelining limitation absent from the teachings of Huscroft by disclosing the storage of cells in a pipelining First-In First-Out (FIFO) buffer until an appropriate time arrives for transmission **[col. 17 lines 60-67]** (wherein said data network interface device provides pipelining stages that models any external device latency by an equivalent number of clock cycles to align receipt of said overhead byte with said indication of validity transmitted from said external device to said insertion interface).

23. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use pipelining to delay an operation in Huscroft's invention to ensure network synchronism is not disturbed.

24. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Akaike, Giorgetta and Venkataraman, as applied to **claim 7** above, and further in view of Parruck et al. (US Pat 7,139,271), hereinafter referred to as Parruck.

25. For **claim 14**, Parruck teaches the calendar limitation absent from the teachings of Huscroft by disclosing the use of a port calendar **[figure 24]** (wherein said data network interface

device includes a programmable calendar for dividing and assigning a portion of a total data rate of said data network interface device to a specific stream of data).

26. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a calendar in Huscroft's invention to determine which output port needs to be serviced.

27. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Akaike, Giorgetta and Venkataraman, as applied to **claim 7** above, and further in view of Robertson et al. (US Pat 7,027,447), hereinafter referred to as Robertson and Akaike.

28. For **claim 16**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. The rejection of **claim 15** discusses the use of multiple interface devices and provides the motivation to combine. Huscroft does not teach an interface is provided different clock domains. Robertson teaches the different clock domain limitation absent from the teachings of Huscrocft by disclosing a ring path **24** that operates in two different domains **[col 8 lines 52-56]** (wherein said network interface device is a plurality of interface devices for decoupling multiple channels, and wherein each parallel clock of said plurality of interface devices is provided with different clock domains such that each of said plurality of interface devices maintains a minimum frequency of operation that provides sufficient headroom to accommodate for signal clock variations and cross-clock domain signalling latency). It would have been obvious to a person of ordinary skill in the art at the time of the invention to compensate for multiple clock domains in Huscroft's invention by trying to minimize latency.

Response to Arguments

29. Applicant's arguments with respect to **claims 1-22** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY M. RUTKOWSKI whose telephone number is (571)270-1215. The examiner can normally be reached on Monday - Friday 7:30-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey M Rutkowski
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03/20/2008

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